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OFFICE OF MANNED SPACE FLIGHT
PROGRAM DIRECTIVE

M-D MA 1400.077 (Project)

DATE Dec. 18, 1967

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BY: [signature]
DATE: 2/14/74

APOLLO PROGRAM DIRECTIVE NO. 35
MA 009-035-1A

TO: Distribution

FROM: [signature]
APOLLO PROGRAM DIRECTOR

SUBJECT: Mission Assignments for Launch Vehicles 206, 207 and 503

REFERENCE: APD No. 4H, November 3, 1967 (CONFIDENTIAL)

I. PURPOSE: This Directive presents requirements to be used in the planning and conduct of the mainline and alternate missions assigned to Launch Vehicles 206, 207 and 503.

II. SCOPE: The mainline and alternate mission assignments for Launch Vehicles 206, 207, and 503 follow:

1. The mainline Apollo flight program provides for a second unmanned Lunar Module development mission to be performed on Launch Vehicle 206. The alternate assignment for Launch Vehicle 206 is to the dual launch (LM payload) manned CSM-LM Operations mission should the Saturn V be unavailable for the CSM-LM Operations mission.

2. Launch Vehicle 207 has an alternate assignment to the dual launch (CSM payload) manned CSM-LM Operations mission should the Saturn V be unavailable for the CSM-LM Operations mission.

3. The mainline Apollo flight program provides for a third unmanned Saturn V development mission to be performed on Launch Vehicle 503. The alternate assignment for Launch Vehicle 503 is to a manned CSM-LM Operations mission.

The scheduled launch dates and launch complex assignments for the mainline and alternate missions described above are specified in the referenced Apollo Program Directive 4H.

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III. ACTION REQUIRED: Mission planning shall proceed to support the mainline and alternate missions assigned to Launch Vehicles 206 and 503 and the alternate mission assigned to Launch Vehicle 207. Requirements for the mission are contained in Attachments A, B, C and D to this Directive. Configuration of the space vehicles and ground support equipment will proceed to support the mainline missions (Attachments A and C). The security classification of the Attachments is associated with the appearance of payload requirements for specific missions.

IV. RESPONSIBILITIES: Apollo Program Offices are to implement the requirements of this directive.

Attachments:
A. LM Development Mission
B. CSM-LM Operations Mission (Dual Launch)
C. L/V & S/C Development Mission
D. CSM-LM Operations Mission

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Attachment A

MISSION: LM DEVELOPMENT	
LAUNCH VEHICLE: 206	FLIGHT AZIMUTH: 72°
SPACECRAFT: LM2; NOSECONE	INITIAL ORBIT: 85/120 N. MI.
PAYLOAD REQUIREMENT: 37,500 LBS.	MISSION DURATION: APPROX. 6 HRS.

PRIMARY OBJECTIVES:

1. Verify uprated H-1 engine performance.
2. Primary objectives not satisfied on the Apollo 5 mission will be primary objectives for this flight.

MISSION EVENTS:

Nosecone jettison following orbital insertion.
LM separation by RCS during first orbit.
Multiple DPS and APS burns, including fire-in-the-hole and APS depletion burns.
Commands may be sent to the S-IVB/IU after LM separation, and to the ascent stage after the final APS burn in accordance with approved extended mission plans.

EXPERIMENTS:

M-415 Thermal Control Coatings

OPERATIONAL TESTS:

Orbital Safing

REAL TIME ALTERNATES:

Provision shall be made to pursue primary objectives associated with the LM in the event of failure of the launch vehicle to achieve orbit, and in the event of LM guidance failure.

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Attachment B

MISSION: CSM-LM OPERATIONS (DUAL LAUNCH)		
LAUNCH VEHICLE:	207	206
SPACECRAFT:	CSM 103	LM 3; NOSECONE
PAYLOAD REQUIREMENT:	38,100 LBS.	38,100 LBS.
FLIGHT AZIMUTH:	~83°	~83° or 96°
INITIAL ORBIT:	105 N. MI	115 N. MI.
MISSION DURATION:	8 to 11 DAYS	

PRIMARY OBJECTIVES:

1. Verify LM/crew performance in earth orbital environment.
2. Verify spacecraft/crew operation in earth orbit, including:
   a) Closed-loop CSM/S-IVB attitude control
   b) Rendezvous maneuvers.
   c) Docking.
   d) Extravehicular astronaut activity.
3. Demonstrate mission support facilities performance during an earth orbital mission.
4. Verify uprated H-1 engine performance.
5. Flight and ground crew experience and training.
6. Demonstrate capability to perform a dual launch mission.

MISSION EVENTS:

Rendezvous, docking and LM extraction.
Extravehicular crew transfer.
Docked DPS and SPS burns.
LM staging and LM active rendezvous.
Unmanned APS burn.
A CSM flyby of the ascent stage may be performed.
SPS deorbit burn with guided entry to an Atlantic recovery area.

EXPERIMENTS:

M-415 Thermal Control Coatings (Vehicle 206 only).

OPERATIONAL TESTS:

None

REAL TIME ALTERNATES:

If LM extraction cannot be performed, the mission will continue carrying out those activities for which a LM is not required.

SPECIAL ABORT PROVISIONS:

The capability for RCS deorbit shall be retained for each orbit throughout the mission.

CSM RESCUE:

Provision shall be made for CSM rescue of the LM.

Attachment C

MISSION: L/V AND S/C DEVELOPMENT	
LAUNCH VEHICLE: 503	FLIGHT AZIMUTH: 72°
SPACECRAFT: BP-30; LTA-B	INITIAL ORBIT: 100 N. MI.
PAYLOAD REQUIREMENT: 95,000 LBS.	MISSION DURATION: UP TO 7-1/2 HRS

PRIMARY OBJECTIVES:

(No primary objectives are assigned at this time. Launch vehicle primary objectives not satisfied on prior flights of this mission will be primary objectives for this flight.)

MISSION EVENTS:

The launch vehicle will place the S-IVB, Instrument Unit, and payload into a 100 n. mi. circular orbit.

Following a checkout period in the initial orbit, the S-IVB will inject into a simulated translunar trajectory.

Payload separation and recovery will not be performed

Note: The launch vehicle profile shall follow that for the Apollo 6 mission to avoid a requirement for ground network reconfiguration and software reverification.

EXPERIMENTS AND OPERATIONAL TESTS:

No operational tests will be performed, and no experiments are assigned to this flight.

REAL TIME ALTERNATES:

None

ATTACHMENT D

MISSION: CSM-LM OPERATIONS	
LAUNCH VEHICLE: 503	FLIGHT AZIMUTH: 72°
SPACECRAFT: CSM 103; LM 3	INITIAL ORBIT: 100 N. Mi.
PAYLOAD REQUIREMENT: 95,000 LBS.	MISSION DURATION: 8 to 11 DAYS

PRIMARY OBJECTIVES:

1. Verify LM/crew performance in earth orbital environment.
2. Verify spacecraft/crew operation in earth orbit, including:
   a) Closed-loop CSM/S-IVB attitude control.
   b) Rendezvous maneuvers.
   c) Docking.
   d) Extravehicular astronaut activity.
3. Demonstrate mission support facilities performance during an earth orbital mission.
4. Flight and ground crew experience and training.

MISSION EVENTS:

Transposition, docking and LM extraction.
S-IVB restart may be performed (unmanned).
Extravehicular crew transfer.
Docked DPS and SPS burns.
LM staging and LM active rendezvous.
Unmanned APS burn.
A CSM flyby of the ascent stage may be performed.
SPS deorbit burn with guided entry to an Atlantic recovery area.

EXPERIMENTS:

To be determined.

OPERATIONAL TESTS:

None

REAL TIME ALTERNATES:

If LM extraction cannot be performed, the mission will continue carrying out those activities for which a LM is not required.

SPECIAL ABORT PROVISIONS:

The capability for RCS deorbit shall be retained for each orbit throughout the mission.

CSM RESCUE:

Provision shall be made for CSM rescue of the LM.